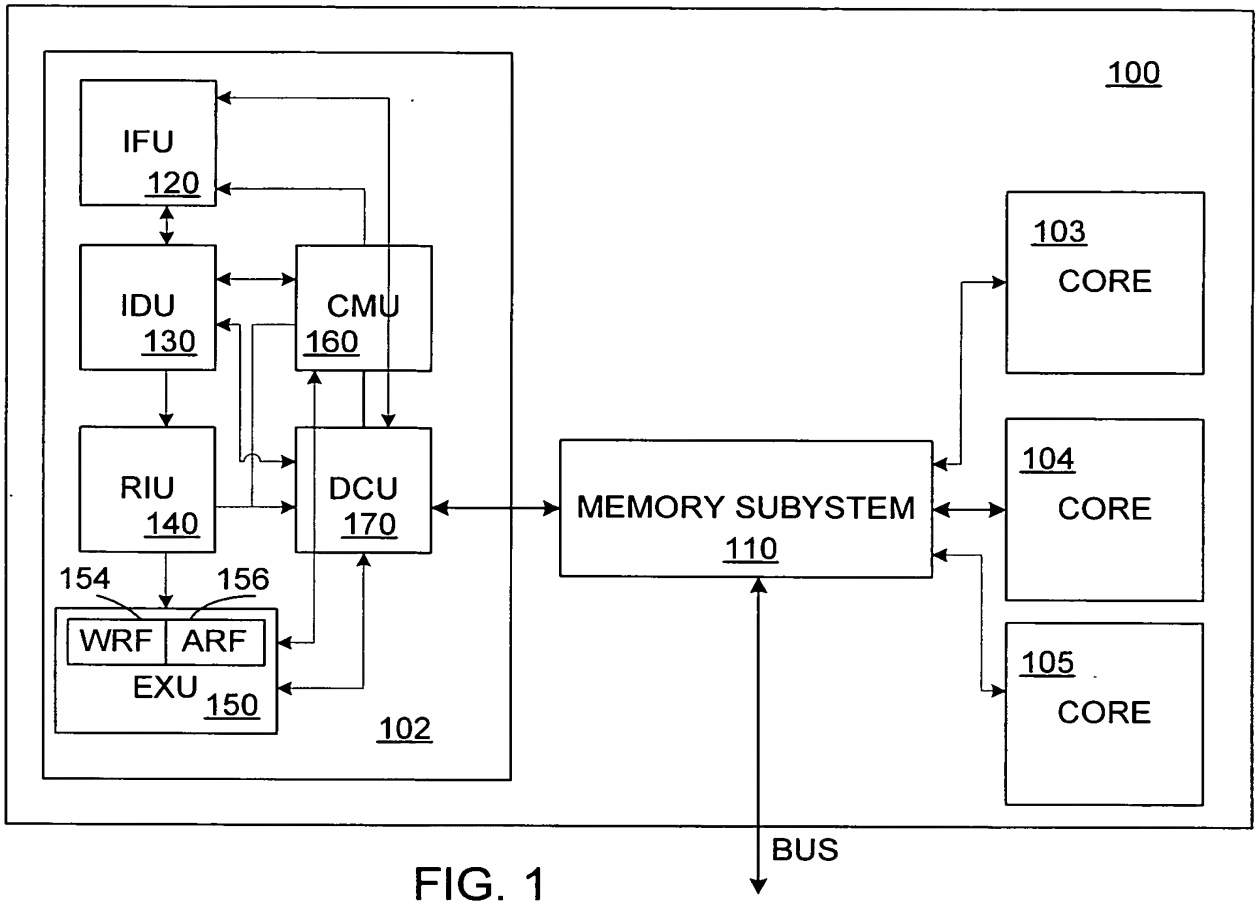
100
IFU
120
IDU
130
CMU
160
RIU
140
DCU
170
154
156
WRF
ARF
EXU
150
102
MEMORY SUBYSTEM
110
103
CORE
104
CORE
105
CORE
BUS

FIG. 1

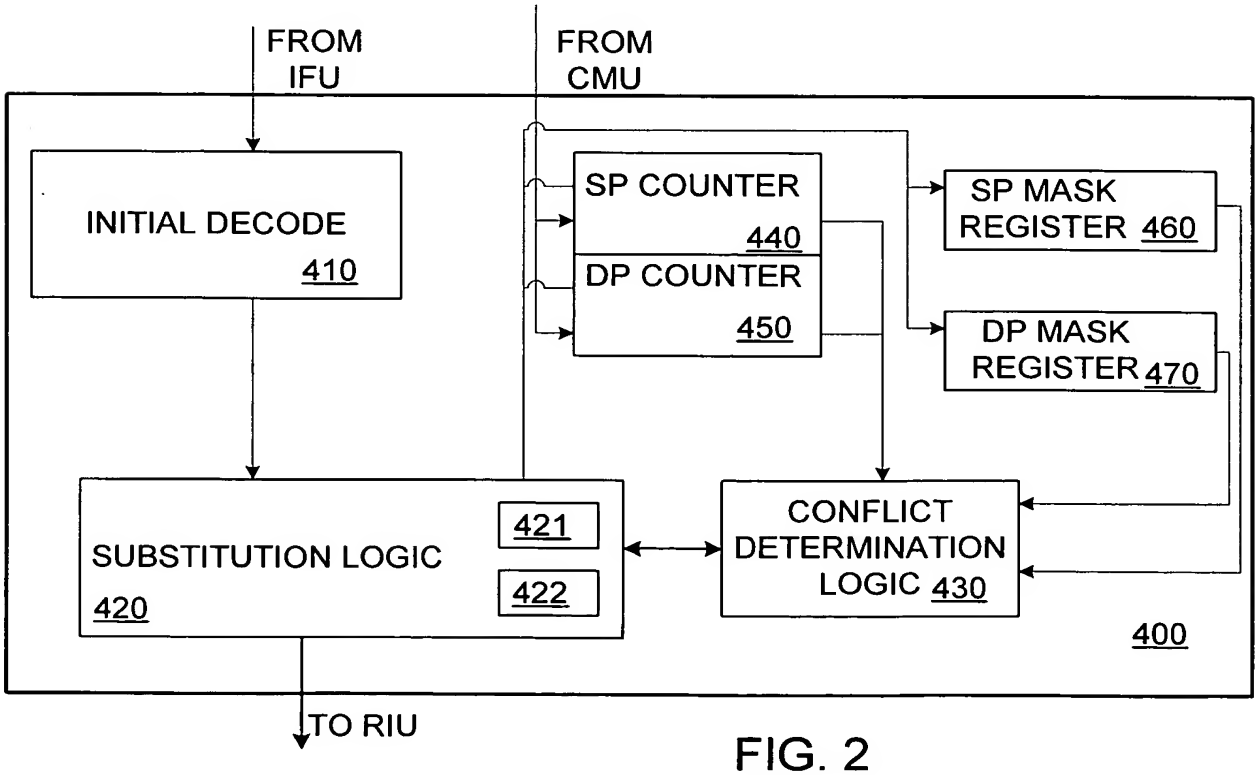
FROM
IFU
FROM
CMU
INITIAL DECODE
410
SP COUNTER
440
DP COUNTER
450
SP MASK
REGISTER 460
DP MASK
REGISTER 470
SUBSTITUTION LOGIC
420
421
422
CONFLICT
DETERMINATION
LOGIC 430
400
TO RIU

FIG. 2

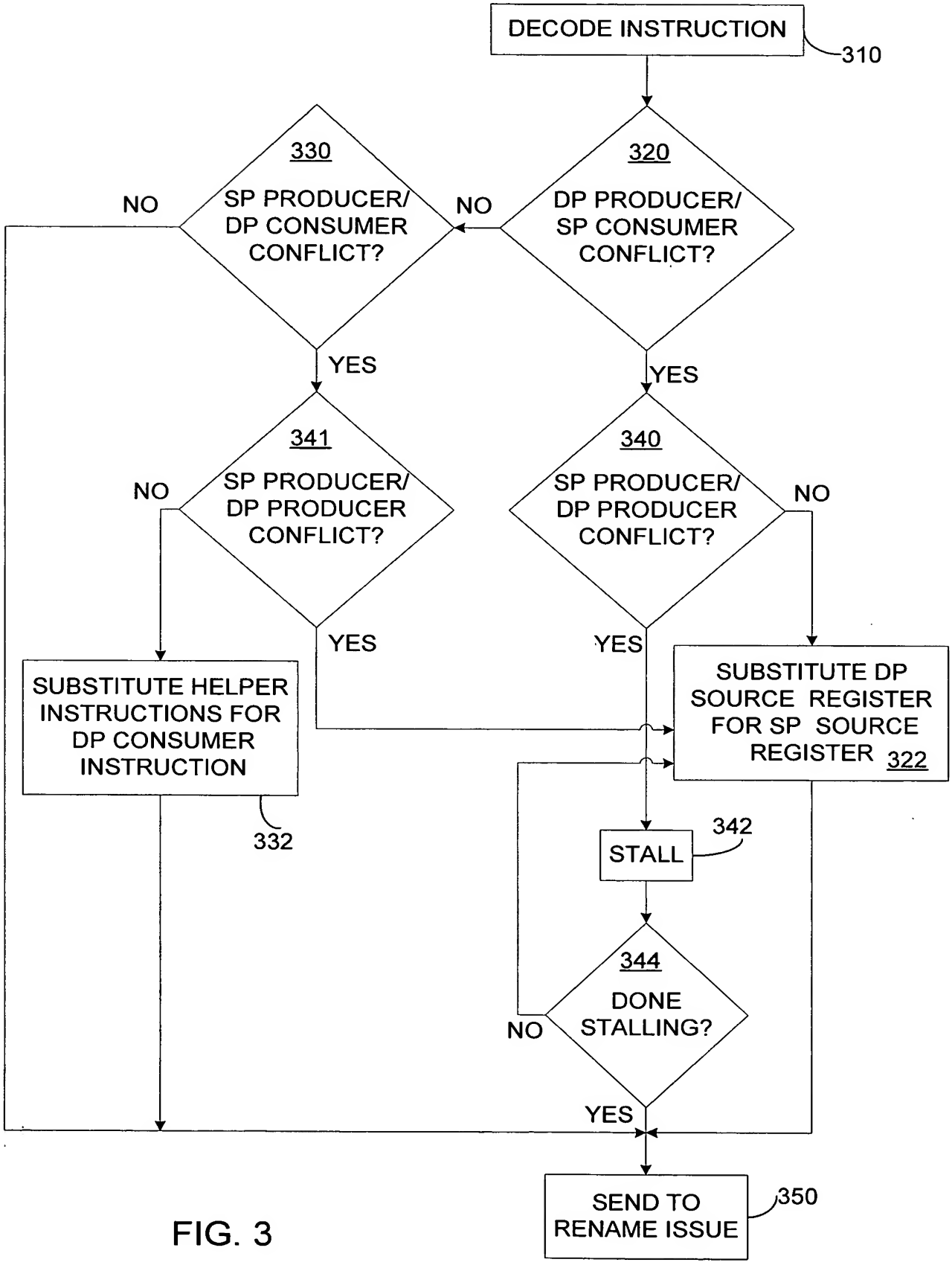
DECODE INSTRUCTION
310
330
SP PRODUCER/ DP CONSUMER CONFLICT?
320
DP PRODUCER/ SP CONSUMER CONFLICT?
NO
NO
YES
YES
341
SP PRODUCER/ DP PRODUCER CONFLICT?
340
SP PRODUCER/ DP PRODUCER CONFLICT?
NO
NO
YES
YES
SUBSTITUTE HELPER INSTRUCTIONS FOR DP CONSUMER INSTRUCTION
332
SUBSTITUTE DP SOURCE REGISTER FOR SP SOURCE REGISTER 322
342
STALL
344
DONE STALLING?
NO
YES
SEND TO RENAME ISSUE
350

FIG. 3

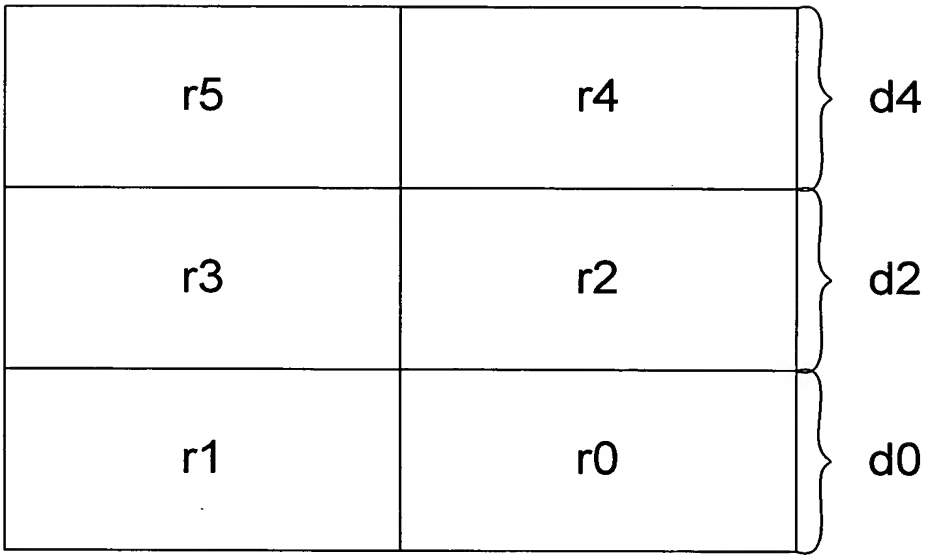

FIG. 4

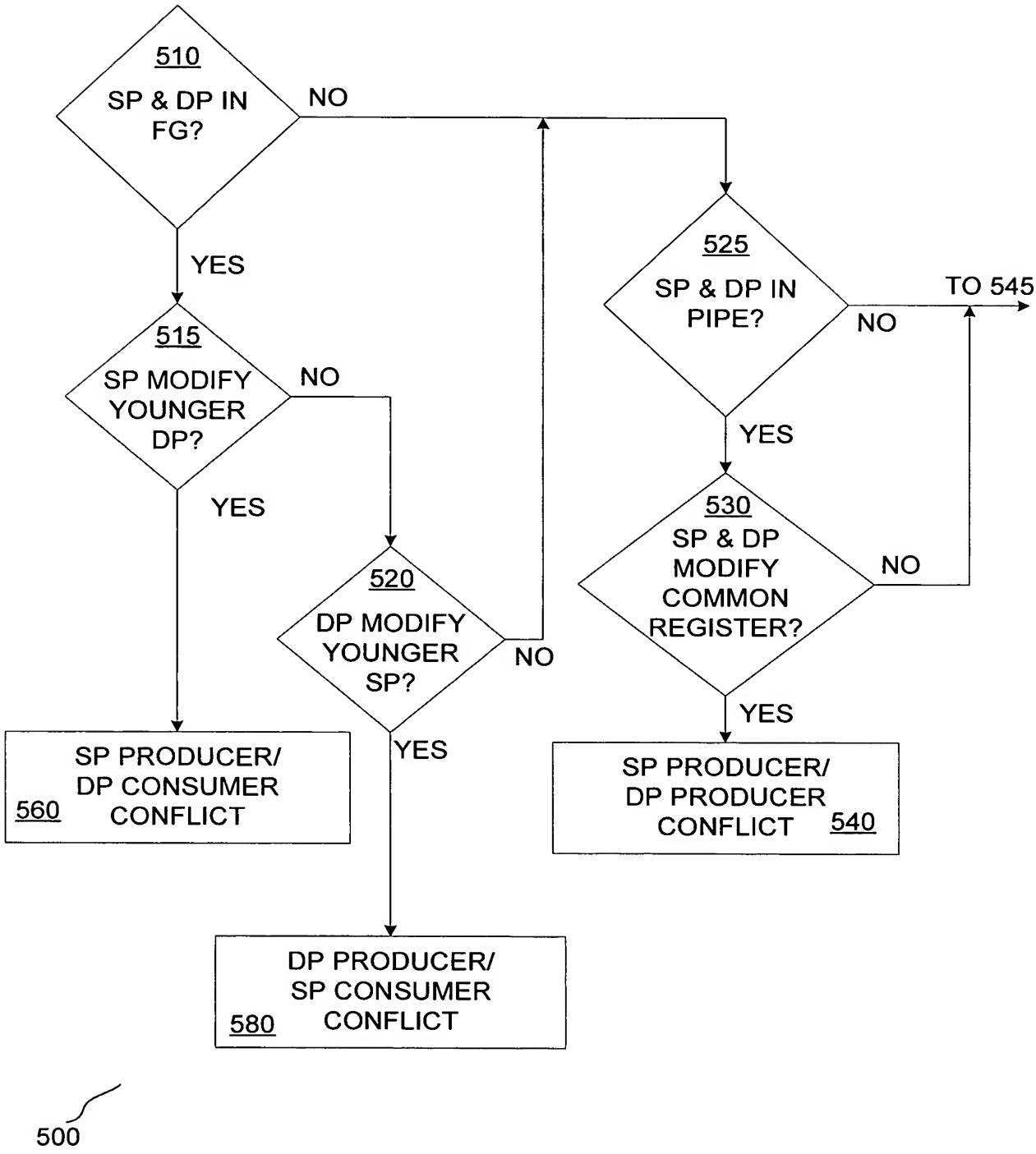
510
SP & DP IN FG?
NO
YES
515
SP MODIFY YOUNGER DP?
NO
YES
520
DP MODIFY YOUNGER SP?
NO
YES
525
SP & DP IN PIPE?
NO
TO 545
YES
530
SP & DP MODIFY COMMON REGISTER?
NO
YES
SP PRODUCER/ DP CONSUMER CONFLICT
560
SP PRODUCER/ DP PRODUCER CONFLICT
540
DP PRODUCER/ SP CONSUMER CONFLICT
580
500

FIG. 5A

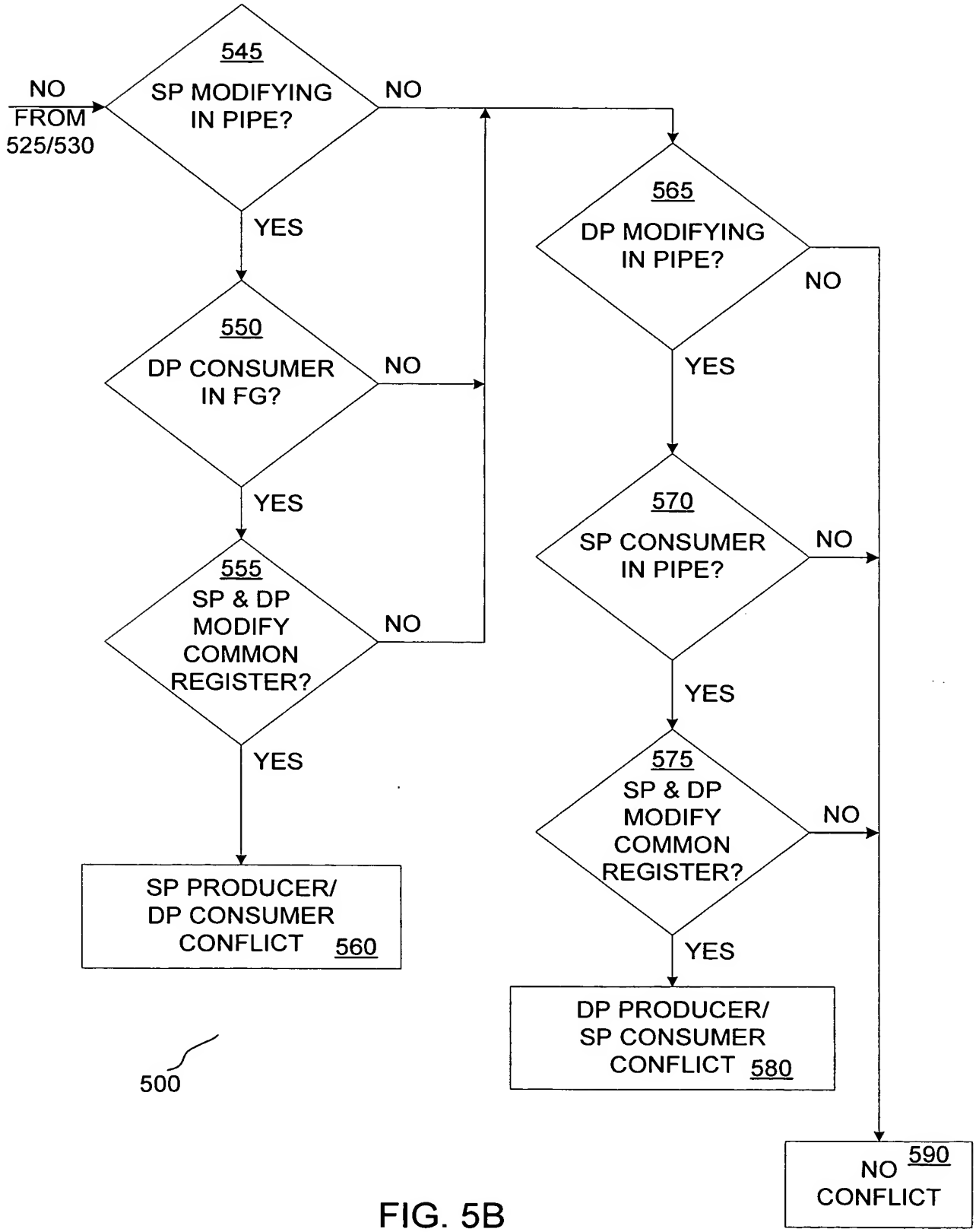
NO
FROM
525/530
545
SP MODIFYING
IN PIPE?
NO
YES
550
DP CONSUMER
IN FG?
NO
YES
555
SP & DP
MODIFY
COMMON
REGISTER?
NO
YES
SP PRODUCER/
DP CONSUMER
CONFLICT 560
565
DP MODIFYING
IN PIPE?
NO
YES
570
SP CONSUMER
IN PIPE?
NO
YES
575
SP & DP
MODIFY
COMMON
REGISTER?
NO
YES
DP PRODUCER/
SP CONSUMER
CONFLICT 580
NO 590
CONFLICT
500

FIG. 5B